# GAHANNA ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM AND PLAN

**January 2014**

## *Table of Contents*



## *List of Figures*

## *SECTION 1.0 Introduction*

The purpose of this document is to supplement the regulations established by the City of Gahanna (City) to provide for the health, safety, and general welfare of the citizens of the City of Gahanna through the regulation of illicit discharges to the Municipal Separate Storm Sewer System (MS4). The regulations establish methods for controlling the introduction of pollutants into the MS4 in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process as required by the Ohio Environmental Protection Agency (Ohio EPA).

This document outlines the processes that the City is taking to address concerns and water quality issues related to illicit discharges within their jurisdiction and as defined in their current NPDES permit issued through Ohio EPA.

Substantial investments in time, money, and energy have contributed to the progress made to date with defining and documenting the issues surrounding illicit discharges, primarily focusing on discharging HSTS. These efforts have involved identifying the locations of HSTS throughout City, Field Verification and Dry Weather Screening (DWS) of Municipal Separate Storm Sewer (MS4) outfalls, defining and evaluating the MS4, establishing ordinances and zoning requirements, conducting community education and outreach to HSTS owners, prioritizing future screening efforts and the extension of sanitary sewers to allow for removal of many of the HSTS previously in use within the City.

The National Pollution Discharge Elimination System (NPDES) Small MS4 Stormwater General Permit (OHQ000002) defines the area of responsibility of the permittee to the locations that meet two requirements. The first criteria that defines the area of responsibility includes the MS4s, which the permittee owns and/or operates. Second, the area of responsibility must fall within an area designated by the latest United States Census as an 'Urbanized Area'.

## *SECTION 2.0 General Permit Information*

This document was produced in accordance with the NPDES Small MS4 Stormwater General Permit (OHQ000002) issued to the City by Ohio Environmental Protection Agency (OEPA). This permit was made effective on January 30, 2009, and is to remain in effect until January 29, 2014. This document is subject to periodic updates as progress is made with the various requirements of the permit and as OEPA clarifies or modifies the language of the permit.

> "*As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches…. Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to our Nation's water quality."* (Source: http://cfpub.epa.gov/npdes/index.cfm )

In accordance with Part III of the NPDES Small MS4 Stormwater General Permit, a Stormwater Management Program (SWMP) was developed to outline the methodology and rational to be used to satisfy the appropriate water quality requirements of Ohio Revised Code (ORC) Chapter 6111 on water pollution control and the Federal Clean Water Act. This SWMP includes management practices, control techniques, system designs, and engineering methods and addresses the following six Minimum Control Measures (MCM):

1) public education and outreach
2) public participation / involvement,
3) illicit discharge detection and elimination (IDDE)
4) construction site runoff control
5) post-construction runoff control
6) pollution prevention / good housekeeping for municipal operations.

This document is required as specified in Part III, Section 3.e of the NPDES Small MS4 Stormwater General Permit, with Section 3 being the IDDE minimum control measure.

## SECTION 2.1 Supporting Documents and Programs

This document does not stand in isolation. It is part of a larger stormwater management effort and as such, should be considered in coordination with the following documents and programs:

Federal Clean Water Act

NPDES Small MS4 Stormwater General Permit (OHQ000002)

Ohio Revised Code

City of Gahanna Stormwater Management Plan

City of Gahanna Storm Water Management Program

ODNR Rainwater Manual

## SECTION 2.2. Coordinating Agencies and Departments

This document reflects the cooperative effort by several departments and agencies dedicated to addressing public health issues and protecting and managing water resources. The following partner agencies are involved with this effort:

Gahanna Service Department (Stormwater Division)
Gahanna Parks Department
Gahanna Public Information Office
Franklin County Public Health (FCPH)
Franklin Soil and Water Conservation District (FSWCD)

## SECTION 2.3 Decision Process and Rational

This IDDE Plan was produced in accordance with requirements set forth in the current NPDES Small MS4 Stormwater General Permit. The intent of the actions taken and planned are to provide for the health, safety, and general welfare of the citizens of the City of Gahanna through the regulation of illicit discharges to the Municipal Separate Storm Sewer System. The objectives of these efforts are: to prohibit illicit discharges and illegal connections to the MS4; and to utilize legal authority to carry out inspections, monitoring procedures, and enforcement actions necessary to ensure compliance with this regulation. These regulations apply to all residential, commercial, industrial, or institutional facilities responsible for discharges to the MS4 and on any lands in the City of Gahanna, except for those discharges exempted from regulation.

City Ordinance 927.24 -illicit non-stormwater discharge and illegal connection to the storm sewer system, defines the prohibitions, responsibilities, monitoring of illicit discharges and illegal connections, and enforcement processes associated with illicit discharges for the City. The Storm Water Management Plan outlines communication activities and target audiences associated with requirements of the NPDES Permit. And this document outlines topics associated with Illicit Discharge Detection and Elimination efforts being undertaken by the City.

Regarding discharges from HSTS, the City maintains an active relationship with Franklin County Pubic Health for inspecting systems and enforcement measures consistent with their legal authorities.

## SECTION 3.0 Illicit Discharge: Definition

Stormwater regulations define an "illicit discharge" as:

*"any discharge to a municipal separate storm sewer (MS4) that is not composed entirely of stormwater."*

Common sources of non-stormwater, dry weather discharges in urban areas include apartments and homes, car washes, restaurants, airports, landfills, and gas stations, to name but a few. These so-called "generating sites" discharge sanitary wastewater, septic system effluent, vehicle wash water, washdown from grease traps, motor oil, antifreeze, gasoline and fuel spills, among other substances. Although these illicit discharges can enter the storm drain system in various ways, they generally result from either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system, spills, or "midnight dumping"). Illicit discharges can be further divided into those discharging continuously and those discharging intermittently. (Source: EPA. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=111 )

## *SECTION 3.1 Municipal Separate Storm Sewer System (MS4): Definition*

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4): as defined at 40 C.F.R. 122.26 (B)(8), municipal separate storm sewer system means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

A. Owned or operated by a state, city, town, borough, county, parish, district, municipality, township, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over sewage, industrial wastes, including special districts under state law such as a sewer district, or similar entity, or an indian tribe or an authorized indian tribal organization, or a designated and approved management agency under Section 208 of the Clean Water Act that discharges to waters of the united states;

B. Designed or used for collecting or conveying storm water;

C. Which is not a combined sewer; and

D. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 C.F.R. 122.2.

## *SECTION 3.2 Illicit Discharge Exemptions*

Illicit Discharge: as defined in the Code of Federal Regulations (C.F.R.) at 40 C.F.R. 122.26 (B)(2) means any discharge to an MS4 that is not composed entirely of storm water, except for those discharges to an MS4 pursuant to a NPDES permit or noted in Section 927.24 of the City of Gahanna's Illicit Discharge Ordinance.

The following discharges are exempt until such time as they are determined by the City of Gahanna to be significant contributors of pollutants to the MS4. Additional, other water sources not containing pollutants may be considered at the discretion of the City Engineer. Refer to City Ordinance 927.24 ILLICIT NON-STORMWATER DISCHARGE AND ILLEGAL CONNECTION TO THE STORM SEWER SYSTEM for the most current ordinance detail.

- line flushing
- landscape irrigation
- diverted stream flows
- rising water ground waters
- uncontaminated ground water infiltration
- uncontaminated pumped ground water
- discharges from potable water sources
- foundation drains
- air conditioning condensate
- irrigation water
- springs
- water from crawl space pumps
- footing drains
- lawn watering
- individual residential car washing
- small charity car washes
- flows from riparian habitats and wetlands
- dechlorinated swimming pool discharges
- street wash water
- discharges or flows from fire-fighting activities

In addition, the following are not to be deemed as illicit discharges:

Discharges specified in writing by the City of Gahanna as being necessary to protect public health and safety.

Discharges from off-lot household sewage treatment systems permitted by the Franklin County Public Health District for the purpose of discharging treated sewage effluent unless such discharges are deemed to be creating a public health nuisance by the Franklin County Public Health District. In compliance with the City of Gahanna Storm Water Management Program, discharges from all off-lot household sewage treatment systems must either be eliminated or have coverage under an appropriate NPDES permit issued and approved by the Ohio Environmental Protection Agency. When such permit coverage is available, discharges from household sewage treatment systems will no longer be exempt from the requirements of this regulation.

## *SECTION 4.0 Enacted Stormwater Legislation and Legal Authority*

The related stormwater regulations are authorized by the Federal Clean Water Act, mandated by the US EPA and executed by the OEPA, Division of Surface Water.

### Legislation enabling stormwater regulations:
### Clean Water Act (Federal law)

A complete copy of Chapter 26 of Title 33 of the United States Code, also known as the Clean Water Act, is available through Cornell University: http://www.law.cornell.edu/uscode/33/ch26.html. In addition, a brief history is provided by United States Environmental Protection Agency: http://www.epa.gov/lawsregs/laws/cwa.html

### Ohio Revised Code (State laws)

The following is a list of Ohio Revised Code chapters related to programs in the Division of Surface Water. These chapters can be referenced or downloaded from http://codes.ohio.gov/.

ORC Chapter 3745: Environmental Protection Agency
Creates and establishes powers of the Ohio EPA

ORC Chapter 6111: Water Pollution Control
Specifies powers of the Ohio EPA with regard to water pollution control.

ORC Chapter 6117: Sewer Districts; County Sewers
Authorizes the establishment of sewer districts

ORC Chapter 6119: Regional Water and Sewer Districts
Authorizes the establishment of regional water and sewer districts

## *SECTION 4.1 Local Controls Related to Stormwater Regulation*

City Ordinance 927.24- illicit non-stormwater discharge and illegal connection to the storm sewer system

Ohio Revised Code; Chapters:

- 3707
- 3709
- 3718
- 3767

Franklin County Public Health Regulation 720

Untreated sewage - see Ohio R.C. 3701.59

Interference with sewage flow - see Ohio R.C. 4933.24

Sewer connections and rental rates - see S. & P. S. Ch. 921

Surface water discharge - see S.U. & P.S. Ch. 925

Franklin County Public Health staff has the authority to enforce Franklin County Public Health Regulation 720 (http://myfcph.org/pdfs/regs/720Sewage.pdf) and Ohio Revised Code 3718.011 and 6111 for the resolution of illicit discharges. Also see http://myfcph.org/npdes.php for more information and resources.

## *SECTION 5.0 MS4 Mapping*

The City has worked cooperatively with Franklin Soil and Water Conservation District (FSWCD) to develop comprehensive mapping as required by the permit. The City maintains a city-wide GIS that includes MS4 components and surface water features. FSWCD has provided in-field verification and mapping of outfalls as well as the Dry Weather Screening (DWS) of these features.

These mapping and screening efforts have led to a comprehensive dataset of MS4 components and surface water features for the City. In addition the compilation of these elements has allowed for a system-wide prioritization for future DWS efforts.

## *SECTION 5.1 Dry Weather Screening (DWS)*

To identify illicit discharges, a process known as DWS is utilized. This process requires field inspection of drainage features (components of the MS4) during periods of dry weather. Dry weather for this screening is defined as having a maximum of 0.1" of rain during the previous 72 hours. This 'dry weather' protocol helps to minimize flows due to rain or snow melt events and highlights illicit discharges.

DWS entails recording a variety of characteristics for each feature screened, including a physical description of the drainage feature, any indicators suggesting an illicit discharge, and a digital photograph of the feature. GPS data loggers are used to record the location and descriptive information of the features. This data is then processed, analyzed, and mapped utilizing GIS. The analysis assists in determining which drainage features are likely to contain illicit discharges.

The groups of features screened during this process are:

**Flowing Pipes**: outfalls with flow at the time of screening

Note: outfalls with flow within catch basins are included in this group

**Non-Flowing Pipes**: outfalls with no flow at the time of screening

Note: outfalls without flow within catch basins are included in this group

**Flowing Channels**: constructed or man-made channels with flow at the time of screening

**Non-Flowing Channels**: constructed or man-made channels without flow at the time of screening

**Catch Basins**: catch basins with or without flow at the time of screening

**Generic Points**: locations not fitting into the above categories, but which are of interest to stormwater management and illicit discharges: i.e. seeps, unknown water sources, dump sites, etc.

In addition to the features dry weather screened, the locations of crossovers (drainage passing under roadways or structures), and manholes are collected to assist in verifying the MS4 components and the flow direction within the system. To allow efficient referencing and tracking of the features dry weather screened, a nomenclature was developed for the various types of features screened which associated each feature with the year it was screened and the type of feature screened**.**

## *SECTION 5.2 Identifying Potential Illicit Discharges*

Features are categorized by their potential to be a source of illicit discharge and whether or not they are an obvious (severe) source of an illicit discharge. The criteria used to identify potentially illicit discharges are considered stand-alone indicators. These are odor, color, floatables, poor pool quality, benthic growth, and deposits and stains. The presence of at least one of these criteria can designate the outfall as potentially illicit.

It is important to identify obvious (severe) sources of illicit discharge during dry weather screening, because the presence of obvious indicators (e.g. raw sewage) allows that feature to be prioritized for future follow-up investigation and resolution. For a location to be determined as an obvious (severe) source of an illicit discharge, it must have at least one of several specific, pre-defined stand-alone indicators.

## *SECTION 5.3 Effluent Sampling*

To better understand what was being observed during dry weather screening and to verify the accuracy of the dry weather screening effort, follow-up effluent sampling of potential illicit discharges were done for the first several years dry weather screening as funding and planning allowed. These water samples were processed at an OEPA certified lab to determine the amounts of pollutants such as Ammonia, Ammonia Nitrogen, E.Coli, Fecal Strep, Fecal Coliform, Methylene Blue Active Substances (MBAS), and Ortho Phosphates. These lab results were included in the GIS and provided to FCPH.

This additional step confirmed the accuracy of the dry weather screening process and due to this has been discontinued as part of the screening process.

The following is a brief description of the substances sampled:

**E. coli** - Escherichia coli, is a species of fecal coliform bacteria that is specific to fecal material from humans and other warm-blooded animals. EPA recommends E. coli as the best indicator of health risk from water contact in recreational waters. Ohio's surface water quality standards are in the process of being revised. In the Draft Revisions to Water Quality Standards Ohio Administrative Code (OAC) Chapter 3745-1 E. coli will be used as the sole indicator for public health nuisances. Results reported in colony forming units per 100 milliliters (cfu/100 mL).

**MBAS** - Methylene Blue Active Substances (surfactant): detergent indicator. Results reported in milligrams per liter (mg/L).

**NH3** - Ammonia: pollutant and an indicator of sewage. Results reported in milligrams per liter (mg/L).

**NH3N** - Ammonia Nitrogen: pollutant and an indicator of sewage. Results reported in milligrams per liter (mg/L).

**Total Plate Count** - The number of bacterial colonies that develop on a medium in a petri dish seeded with a known amount of inoculum. Results reported in colony count (#CC).

## *SECTION 5.4 Dry Weather Screening and Mapping Schedule*

As of 2013, an initial Dry Weather Screening (DWS) of MS4 outfalls and system outlets had been completed and an evaluation of the system was completed to allow for a prioritization of future DWS for the City. Future DWS will be concentrated in areas where discharging HSTS still exist and at strategic system locations which will allow for detection of possible illicit discharges for significant portions of the City at one location.

## *SECTION 5.5 Identifying HSTS Connected to the MS4*

FCPH Water Quality Program staff have been verifying whether aeration systems are connected to the MS4 using various investigation methods. Staff use a current billing list of all aerators on the FCPH annual operational inspection program. They review permit records for notations regarding the discharge point of the aeration system (storm sewer, ditch, stream, waterway, etc.). Staff field verify any aeration systems that they cannot be 100% certain are connected to the MS4. To field verify these potential connections, staff use dye tests, probing for discharge pipes, and sampling results from the Dry Weather Screening of storm sewer outfalls. Upon the determination that an aeration system is connected to the MS4, staff from FCPH will update current lists and mapping as necessary.

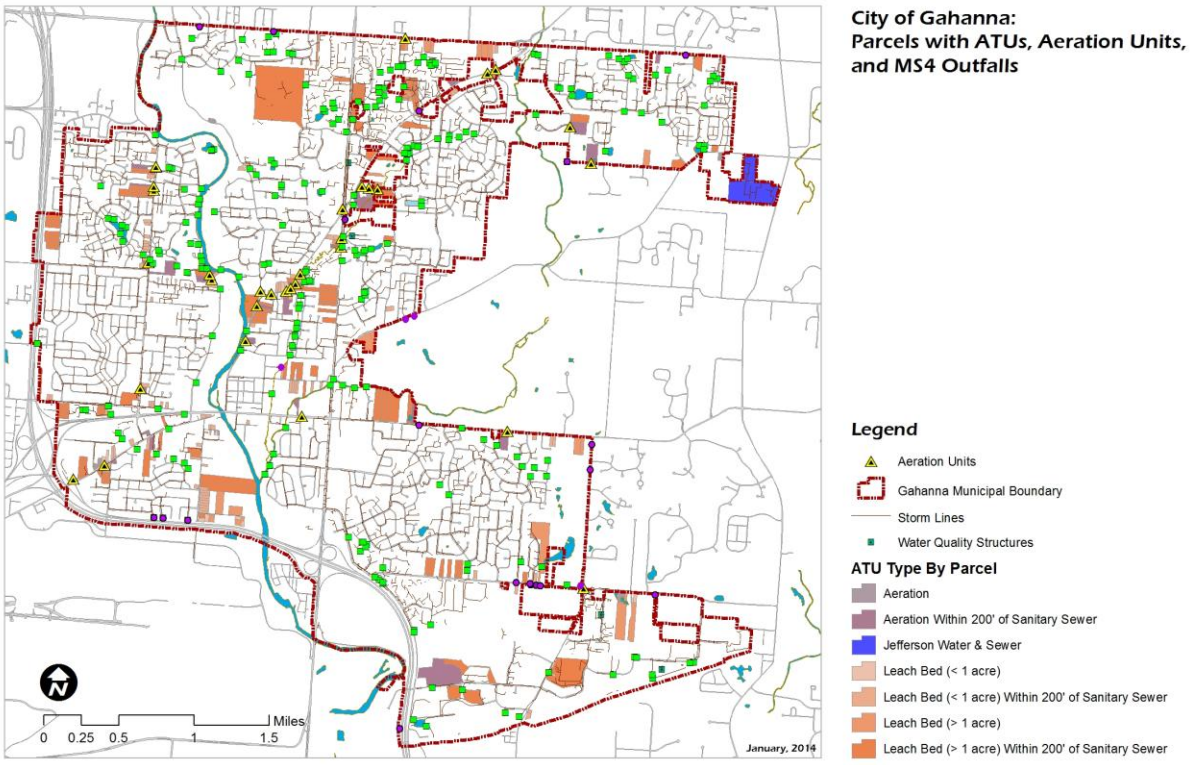


*Figure 1: Mapping of Aeration Units, AUT Parcels and MS4 Outfalls*

## *SECTION 5.6 Mapping HSTS Connected to the MS4*

Franklin County Public Health maintains and is updating records on HSTS connected to MS4s for the City.

## *SECTION 6.0 Prioritized Areas*

The City maintains mapping of the unsewered areas throughout its municipality. These areas were targeted early during the Dry Weather Screening efforts as they were more likely than the sewered areas to produce illicit discharges. The City continues their working relationship with Franklin County Public Health in working with residents in the unsewered areas.

In addition, the City has been able to partially subsidize sanitary sewer connections as citizen petitions for city sewer extensions are implemented. Currently the city offers the potential to have the mandatory sewer fees assessed to the property.

## *SECTION 6.1 Prioritized Areas – Abatement of Issues*

Confirmed by the Dry Weather Screening throughout the City, it was determined that the most significant contributors to non-stormwater flows with public health risks are discharging HSTS. While Franklin County Public Health (FCPH) conducts yearly inspections of these systems, many of the systems are not operating as intended either due to improper management of the systems, or due to the age of the systems. City staff and FCPH staff outreach to the homeowners with these systems and provide guidance and assistance in attempts to bring the systems back into proper operating condition.

Despite these efforts, which often only solve problems temporarily, the most thorough and permanent solutions to abate HSTSs causing public health nuisances are to connect households on HSTS to sewers that already exist and to extend public sewers into areas that are not currently served. The City has undertaken several sanitary sewer extension projects and has begun planning for several additional projects. Subject to available resources and funding, the following is a list of projects aimed at eliminating a majority of the HSTS within the City.

1. **Westside Sewer**, Phases 1 and 2: The sewer installation was completed in January of 2011 (started in Oct, 2010) and the deadline to tie in was Dec 31, 2012. In all 57 on site systems will be eliminated. As of early 2014, (1) system remains to be tied in.

2. **Triangle West** system: This sewer was completed in the spring of 2013.When completed this project will eliminate only 1 on site system but more importantly will eliminate 2 pump stations, 1 being right on the bank of Makenna Creek.

3. **Triangle East Sewer** (Riva Ridge Blvd to Pamela Dr): Phase I of this project was completed in 2013 and eliminated 3 on site systems. Future phases of this project will eliminate approximately 32 on site systems. Phase one began in May of 2013. Phase 1 (four systems). Phase II is in preliminary planning stages – 2016 is predicted for construction.

4. **East Johnstown Sewer** (Andalas drive to Larry Lane): Tentatively set for construction in 2015/2016 . When completed, this project will eliminate approximately 22 on site systems and will serve a 10 acre site pegged for multi-family development.

5. **Price Road Sewer**: Final engineering plans are nearly completed. Construction of Phase I of this project will be in 2014 and will eliminate 1 on site system. Phase II of this project is a very costly and would eliminate approximately 22 on site systems and 1 pump station.

Locations outside of these area will continue to be inspected annually by FCPH staff and investigated by City staff if it receives complaints through its Service Department.

## *SECTION 7.0 Communication and Outreach*

Success of the IDDE Program depends, in part, on communicating it to the stakeholders and the public affected, and on providing the opportunity for community participation and input from various venues. The goal of this communication and outreach is for the community to understand the IDDE program, why it is required and its purpose, who is responsible for its implementation, how it will be implemented, and how they can become part of the solution to stormwater issues.

Communication and Outreach efforts are defined in detail in the City's Stormwater Management Plan within the sections outlining activities for MCM 2 and MCM3. Examples of activities are not limited to, but include making all documents available on their website for viewing and comment, articles in newsletters, educational material in water bills, workshops and programs and current educational material on their website.

## *SECTION 7.1 Reporting Illicit Discharges*

The IDDE Program benefits from citizen reports regarding spills, illegal dumping, sewage and other observed pollution and various avenues are available to the community depending on the material or liquid being discharged.

Reference Gahanna Ordinance 927.24-'Illicit non-stormwater discharge and illegal connection to the storm sewer system' for an elaboration on the required notification of accidental discharges and spills.

Gahanna's Service Department receives discharge and spill complaints from residents, police department and other city staff which are subsequently investigated by City Service Department staff. In addition, the City maintains and follows procedures outlined in their Overflow Emergency Response Plan in accordance with their Capacity assurance, Management, Operations and Maintenance (CMOM) Program.

## *SECTION 7.2 Reporting Chemical Spills and Illegal Dumping Into Storm Sewers*

In addition to communicating with Gahanna's Service Department, the OEPA maintains a task force of responders for complaints of chemical spills into the waters of the state. The toll-free 24/7 hotline is 800-282-9378. More information can be found at http://www.epa.ohio.gov/derr/ersis/er/er.aspx. FCPH has an after-hours emergency phone number for emergency calls outside of business hours for chemical spills affecting MS4S at 614-525-3965.

Citizens are encouraged to report any water pollution related complaint or concern outside of HSTS and emergency spills to Franklin Soil and Water Conservation District, (614) 486-9613.

Non- emergencies can also be report to the Ohio EPA Central District Office at 1-800-686-2330.